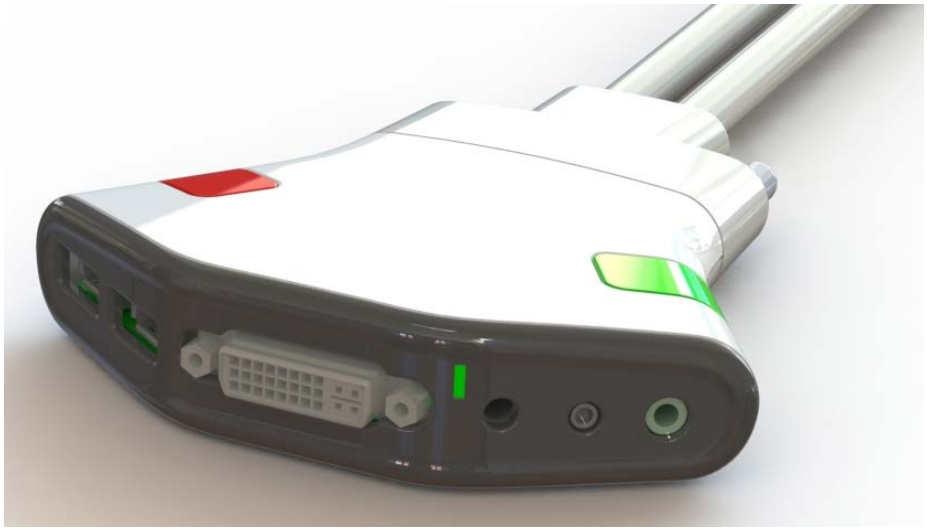
Belkin® Secure 2 port Flip DVI-D/VGA/DP KVM Switch User Manual



Models:

F1DN102V – Secure 2-port VGA KVM w/ audio and remote controller

F1DN102F - Secure 2-port DVI-D single-link KVM w/ audio and remote controller

F1DN102N - Secure 2-port DP KVM w/ audio and remote controller

8820-00773 Rev. A00

Table of Contents

Section 1 - Introduction....2

Why use the Belkin Secure Flip KVM Switch? 2

Package Contents 2

Section 2 - Overview 3

Security Features 3

Operational Features 5

Equipment Requirements 6

Safety Precautions 7

Figure 1 – F1DN102V TOE Front panel TSF Interfaces and Flip remote controller 8

Figure 2 – F1DN102F TOE front panel TSF Interface 8

Figure 3 – F1DN102N TOE Front panel TSF Interfaces 9

Tamper Evident Label 10

Active Anti-Tampering System 10

Product Specifications 11

Section 3 - Installation....12

Before Installation 12

Connection and Installation 13

Section 4 - Operating the Belkin Secure Flip KVM Switch....14

TROUBLESHOOTING 15

Section 5 - Troubleshooting....15

General 15

Keyboard 15

Video 16

Mouse 17

Section 6 - Information....18

FCC Statement 18

Belkin International, Inc., Limited 3-Year Product Warranty 19

Product Security Vulnerability 20

Section 1 - Introduction

Thank you for purchasing this 2 port Belkin Secure Flip KVM Switch. This Belkin Secure Flip KVM Switch is designed for use in secure environments across wide security gaps. This product provides the highest security safeguards and features, meeting current and future cyber prevention requirements.

This User Manual provides all the details you'll need to install and operate your new product, and also to troubleshoot it, in the unlikely event of a problem.

Important:

This product is equipped with always-on active anti-tamper system. Any attempt to open the enclosure may activate the anti-tamper system and render the unit permanently inoperable. If the unit's enclosure appears disrupted or if all the port LEDs flash continuously, please call Belkin Technical Support at 1(800) 282-2355

Why use the Belkin Secure Flip KVM Switch?

Belkin Secure Flip KVM Switches are mandatory cyber security equipment today organizations with multiple isolated networks. Many users in large organizations are working on two isolated networks and require a secure KVM that will be cost effective. Regular secure KVMs are expensive and take up a lot of desktop space. The Belkin Secure Flip KVM Switches have an exceptionally small footprint and from the price point of view it is sold for a similar price as an additional set of display, keyboard and mouse. In most cases using the Belkin Secure Flip KVM Switch is cheaper and more secure than the use of another set of peripherals.

Important Security Note:

If you are aware of potential security vulnerability while installing or operating this product, we encourage you to contact us immediately at the following email address:

gov_security@belkin.com

Package Contents

- Belkin Secure Flip KVM Switch
- 12V 1.5A DC Power Supply
- Remote Control
- User Manual

Section 2 - Overview

Security Features

The 2 port Belkin Secure Flip KVM Switch is the most advanced and secure, commercially available KVM Switch in the market today. This product is a derivative of the high security advanced Belkin KVM products used in many high security government, defense and military organizations. Below is a summary of some key security features incorporated into this product:

Unidirectional Data Paths

Optical diodes are used to enforce unidirectional data flow from the peripheral devices to computers preventing potential leakage paths between computers, even in the severe threat of two infected computers attacking the KVM.

Dedicated Processors for Emulation

The Belkin Secure Flip KVM Switch features a dedicated processor per computer port to emulate peripheral devices. This keeps each computer running on different security levels, physically separated and secure at all times, and prevents any unintended data leakage between computers even when computers are infected by malicious code.

USB Ports Protection

Console USB ports are protected from the use of storage and other unsafe USB devices through strong filtering (independent of other computer protection means). Unqualified devices are rejected when connected to the Belkin Secure Flip KVM Switch. Only mouse and keyboard data are passed through.

Active Always-On Anti-Tampering

Active always-on chassis anti-tampering system prevents the Belkin Secure Flip KVM Switch electronic circuitry from being accessed and tampered with by permanently disabling the product once tampering is detected.

Tamper-Evident Label

A holographic security tamper-evident label is placed on the enclosure to provide a visual indication if the Switch has been opened or compromised.

Please note: Belkin Secure KVM Products cannot be upgraded, serviced or fixed.

Secure Packaging

"Tear away" packaging ensures secure delivery of the Switch as it is routed to the end user. The recyclable packaging also breaks down flat, simplifying the cleanup process.

Non-Reprogrammable Firmware

The product features custom firmware that is not reprogrammable, preventing the ability to remotely attack the KVM control logic.

Common Criteria EAL-4 Listing

The product is one of the only KVMs in the market that is listed by the Common Criteria organization. It is Common Criteria validated to EAL 4+ (Evaluation Assurance Level 4) to assure the highest level of protection.

Tamper-Proof Hardware

All integrated circuits are soldered directly to the printed circuit board to prevent tampering with the components.

No Memory Buffer

The lack of memory buffers prevents unintentional transfer of keystrokes or other data when switching between computers.

LED Indicators

Each port button number illuminates to indicate that the console currently controls the corresponding computer. As a port selector is pushed the LED number will light up.

Operational Features

The Belkin Secure Flip KVM Switch was designed with the user in mind for today's IT environment. Below is a summary of some of the features incorporated into the product.

Remote Control

The Belkin Secure Flip KVM Switch includes a remote control unit for easy placement of the device and providing clear indication of the active network.

Exceptionally Small Footprint

Weighing in at just 1lbs and with a width of 4.6 Inches, Belkin Flip Secure KVMs are by far the worlds smallest secure KVMs in the market today.

Audio Support

This Belkin Secure Flip KVM Switch supports audio out switching. Microphone switching is not supported to prevent analog leakages through audio ports.

Port Coloring

The Belkin Secure Flip KVM Switch has two illuminate channel select push buttons colored in red and green for easy selection and clear indication of channels.

Increased Reliability

Using a new, advanced anti-tampering battery with extremely low self-discharge rate, the life expectancy of the switch has been increased dramatically to over 25 years

No Cables required

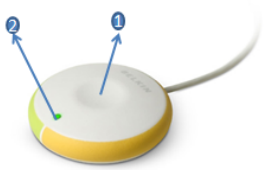
No cables are required with the Belkin Secure Flip KVM Switch as all cables are part of the product making it very easy to install.

Remote Control

The remote control is an optional accessory which allows the user to save desktop space by mounting the product in under the desk or behind the monitor.

The remote control has a single push button used to switch between the two KVM channels.

The Bi-Color LED (illuminated Green and Red alternatively) next to the push button is used to give indication of the active channel. The Green and Red indication is correlating to the Green and Red led indication on the secure KVM (Green for channel 1 (default) and Red for Channel 2)



1 – Channel selection push button
2 – Bi-color channel indication LED

Bloomberg Keyboard Support

The Belkin Secure Flip KM supports the Bloomberg Keyboard through the Console PS/2 Keyboard jack.

Equipment Requirements

User Operating-System (OS) Support

The Belkin Secure Flip KVM Switch is compatible with computers running on, the following OS platforms:

• Windows® 2000

• Windows XP (Home/Professional)

• Windows 2003 Server

• Windows 7

• Windows 8

• Windows Vista®

• Red Hat® Linux®

• Mac OS® X v.10.6 and higher

USB Mouse console port

The Belkin Secure Flip KVM USB mouse console port is compatible with the following types of devices:

- Standard USB mouse

Notes:

- Mouse devices having internal USB hubs are not supported.
- Composite devices having mouse function are supported including extenders.

Cables

No cables are required with the Belkin Secure Flip KVM Switch as all cables are part of the product.

User Audio Devices

The Belkin Secure Flip KVM Switch is compatible with the following types of user audio devices:

- Stereo headset; or:
- Amplified stereo speakers.

USB Mouse and Audio Molded cables

The Belkin Secure Flip KVM Switch includes two sets of USB cables, one for each connected PC. The USB connectors on the client side of these computers are of type USB-A.

Safety Precautions

Please read the following safety precautions carefully before using the Belkin Secure Flip KVM Switch:

- Before cleaning, disconnect the product from DC power.
- Be sure not to expose the product to excessive humidity.
- Be sure to install the product on a clean secure surface.
- Do not place the DC power cord in a path of foot traffic.
- If the product is not used for a long period of time, remove the product's wall-mount power supply from the main jack.
- The product should be stored and used only in temperature and humidity controlled environments as defined in the product's environmental specifications.
- The wall-mount power supply used with this product should be the model supplied by the manufacturer or an approved equivalent provided by Belkin or an authorized service provider. The use of improper power source will void product warranty
- If one of the following situations occurs, get the product checked by a qualified service technician:
  - The product's power supply is overheated, damaged, broken, causes smoke or shortens the main power socket.
  - Liquid penetrates the product's case.
  - The product is exposed to excessive moisture or water.
  - The product is not working properly even after carefully following the instructions in this user's manual.
  - The product has been dropped or is physically damaged.
  - The product has obvious signs of breakage or loose internal parts.
  - Product contains internal battery. Battery is non-replaceable. Never attempt to replace battery as any attempt to open product enclosure would permanently damage the product.

OVERVIEW

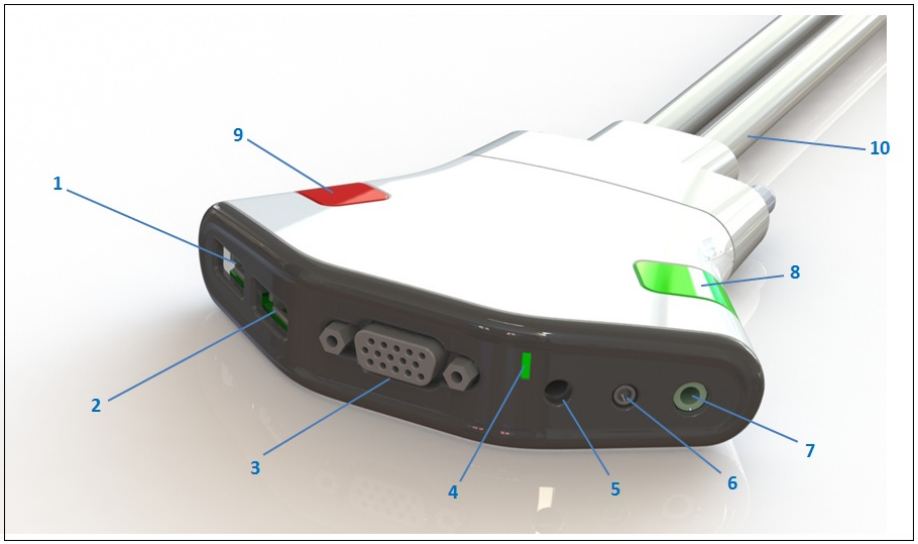


Figure 5 – F1DN102V TOE Front panel features

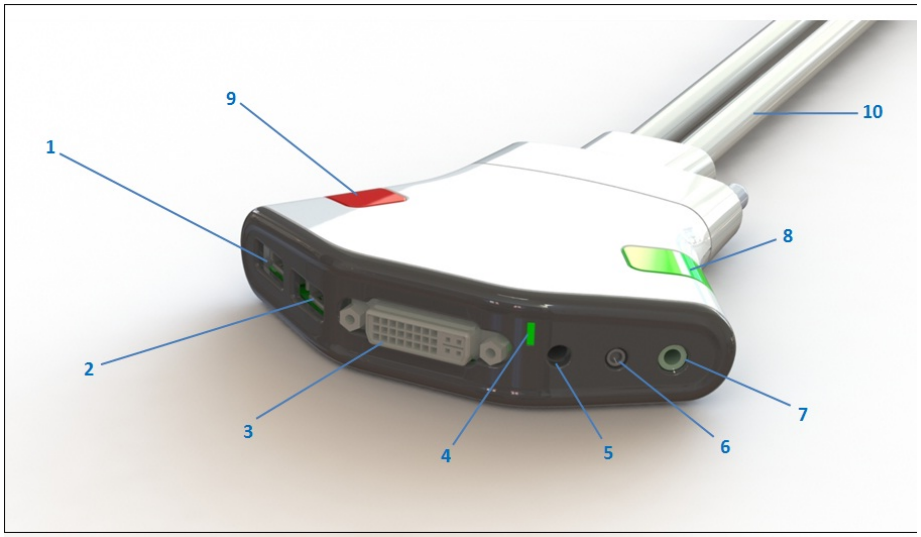


Figure 4 – F1DN102F TOE front panel features

OVERVIEW

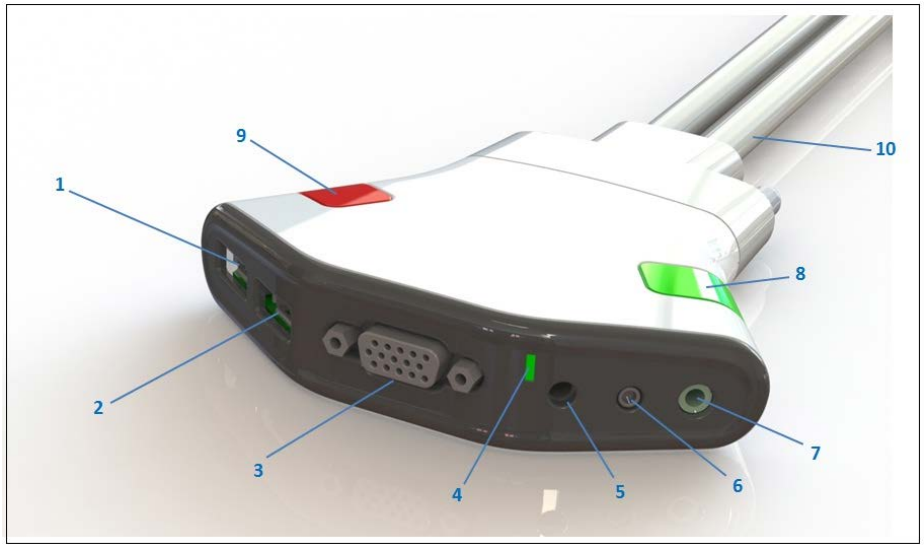


Figure 6 – F1DN102N TOE Front panel features

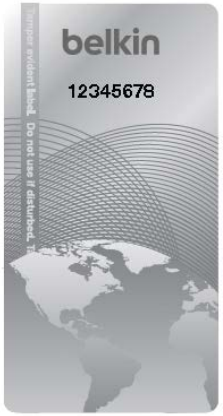
1.	Console USB Keyboard
2.	Console USB Mouse
3.	Console display output port
4.	Display Status LED
5.	DC Jack
6.	Flip Remote controller jack
7.	Console audio out jack
8.	Channel #2 select illuminated push-button
9.	Channel #1 select illuminated push-button
10.	Computer interface cables
11.	Flip Remote Controller - Channel selected Bi-color LED
12.	Remote - Channel select push-button

Table relating to figures 4, 5 and 6

The Belkin Secure Flip KVM Switch uses a holographic tamper evident label to provide visual indications in case of an enclosure intrusion attempt. These labels indicate white dots or the text “VOID” once removed. When opening product packaging inspect the four tampering evident labels.

IMPORTANT NOTICE:

If for any reason the tamper-evident label is missing, appears disrupted, or looks different than the example shown here, please call Belkin Technical Support at 1 (800) 282-2355.



Belkin Holographic Tampering Evident Label

Active Anti-Tampering System

The Belkin Secure Flip KVM Switch is equipped with always-on active anti-tampering system. If mechanical intrusion is detected by this system, the product will be permanently disabled and LEDs will flash continuously.

If the product indicates a tampered state - please call Belkin Technical Support and avoid using the product

.

Product Specifications

Part No.: F1DN102N, F1DN102F, F1DN102V

Enclosure: Impact resistance ABS plastic

Power Requirements: 12V DC, 1.5A (maximum) power adapter with center-pin-positive polarity

AC Input Voltage: 100 to 240VAC

No. of Users Supported: 1

No. of Computers Supported: 2

Console Keyboard Input: USB Type A

Console Mouse Input: USB Type A

Console Video Port F1DN102N – DisplayPort jack

F1DN102F – DVI-D Single-link jack

F1DN102V – VGA D-Sub 15 HD female

Console Headset / Speaker output jack: 3.5mm stereo female jack

Computer Keyboard/Mouse cable: USB Type A

Computer wire length: 6 ft [meters]

Computer Audio Input plug: 3.5mm stereo plug

Computer Video Input plug: F1DN102N – DisplayPort

F1DN102F – DVI-D

F1DN102V – VGA

Port Selector illuminated push-buttons: 2

User Channel Selection Methods: Front panel push-buttons, Remote Control, keyboard shortcuts

Operating Temp: 32° to 104° F (0° to 40° C)

Storage Temp: -4° to 140° F (-20° to 60° C)

Humidity: 0-80% RH, non-condensing

MTBF: 14 years (per MIL-HDBK-217E)

Warranty: 3 years

Dimensions: 4.6 (W) x 4.2 (D) x 1.1 (H) - inches [metric]

Weight: 1 lbs. [metric]

Section 3 - Installation

Before Installation

Unpacking the Product

Before opening the product packaging, inspect the packaging seal condition to assure that product was not accessed or tampered during delivery. If the packaging seal looks suspicious, contact Belkin Technical Support and do not use the product.

After removing the packaging seal, please inspect packaging content to verify that required components included as listed in the Package Contents of this manual.

After the Belkin Secure Flip KVM Switch is removed from its packaging materials, inspect the four tampering-evident labels to assure that product is properly sealed. If one or more label is damaged or missing, contact Belkin Tech Support and do not use that product.

.

Consider the following when deciding where to place the Switch:

• The lengths of the cables attached to your keyboard and mouse

• The location of your computers in relation to your console

• The lengths of the cables you use to connect your computers to the Switch

Warning: Avoid placing cables near fluorescent lights, air-conditioning equipment, or machines that create electrical noise (e.g., vacuum cleaners).

Connection and Installation

Step 1 Connecting the Console Devices to the Belkin Secure Flip KVM Switch

Warning: Before attempting to connect anything to the Switch, or your computers, please ensure that all computer equipment and devices are powered off.

1.1 Connect monitor to the User video port.
1.2 Connect the user keyboard to the Console section of the Switch. For USB-type keyboards, connect to the USB port marked “Keyboard.”
1.3 Connect the user mouse to the Console section of the Switch. For USB-type mice, connect to the USB port marked “Mouse.”

Note: The Switch will not operate properly if the keyboard and mouse are not connected to their respective locations as listed on the steps above. Additionally, keyboards with integrated USB hubs, card-readers, storage devices or multimedia extensions are not supported.

Connect a user headphone or amplified speakers to the audio output port marked “Audio” on the Console section of the Switch.

Caution: Do not connect a microphone to the audio output port.

Step 2 Connecting Computers to the Belkin Secure Flip KVM Switch

2.1 Connect the Belkin Secure Flip KVM Switch to the computers via the two attached cables. For the USB cable select any available functional USB port on the computer. For audio connect to the available audio output (lime green color) or line output (blue color) jacks. For Video connect to the suitable video jack on the PC.
2.2 Connect remote Control (if needed) to the remote control jack on the Belkin Secure Flip KVM Switch.

Step 3 Powering Up

3.1 Power on the monitor.
3.2 Connect the Belkin Secure Flip KVM Switch to the cable DC plug of the external AC/DC power supply.

3.4 Power up all the attached computers, and check for display and peripheral functionality. All computers can be powered on

Notes: Your computers should recognize the Belkin Secure Flip KVM Switch and automatically install the HID USB driver if necessary.

You should be able to, at this point, to see an image on the user display and use the mouse and keyboard.

Section 4 - Operating the Belkin Secure Flip KVM Switch

Illuminated Push Buttons

The default channel is #1 upon powering up. The user can select any other channel by pressing the appropriate Illuminated panel push button. The keyboard and audio will follow the selected channel.

Important:

If you are aware of potential security vulnerability while installing or operating this product, we encourage you to contact us immediately at the following email address: gov_security@belkin.com

The gov_security@belkin.com email address is not intended to reach technical support on Belkin products or services. Any support inquiries should be directed to support@belkin.com

Section 5 - Troubleshooting

General

No power, and none of the front panel LEDs are illuminating.

- Check that the power supply is properly connected to the mains socket.
- Check that DC plug is fully inserted into the switch DC jack
- Check that the device is powered by using optical mouse with visible red light. If power is not available, change the power supply.

The push-buttons buttons are not functioning.

If a remote control is being used the channel switching is controlled using the Remote Control and the push-buttons on the KVM will not work.

Channel select LEDs are blinking with audible repeating clicking sounds.

- This occurs after the configuration is set. Power-cycle the unit (disconnect and re-plug the power adapter).
- If the blinking and clicking still persist after power cycling the unit, it is possible that the device anti-tampering system was triggered. Change the unit and call Belkin technical support.

Keyboard

The computer does not detect my keyboard, or my keyboard does not work when I switch computers or reboot.

- Check that the keyboard you are using is connected properly to the KVM Switch.
- Check that the USB cable between the KVM Switch and the computer is completely connected.
- Try connecting to a different USB port on the computer.
- Make sure the keyboard works when directly plugged into the computer (the HID USB driver is installed on the computer). Rebooting may be necessary when trying this.
- Make sure you are not using a keyboard with an integrated USB hub or other USB-integrated devices.
- If the computer is coming out of standby mode, allow up to one minute to regain mouse function.
- Try a different keyboard.

TROUBLESHOOTING

The CAPS, NUM, and Scroll Lock lights on my keyboard do not function when I connect to the Switch.

This is normal operation. The lock-state information is fully functional. Due to the security of the Switch and known exploitation of lock-state information for leakages, the LED status is not supported. Please refer to the operating system for verification of the lock-state information for CAPS, NUM, and Scroll Lock.

Certain keyboard functions are not working

Some non-standard keyboard functions are disabled by the switch to prevent security risks. Contact Belkin Tech Support for latest compatibility list.

Video

Problem: No video image in user display (both channels)

Solutions:

- Check that the display is properly powered.
- Check that DVI cable is properly secured at both sides.
- Check at the display on-screen menu that source selected matches the cable connected to the display.
- Check if display video mode is the same as PC (DVI and DVI or VGA and VGA).
- Check that display diagnostic LED is steady green.

Problem: No video image in user display (one channel)

Solutions:

- Reboot the computer.
- Check that the video cable connecting computer and KVM is properly secured at both sides.
- Check that PC video output is sent to the connected video connector (if PC supports multiple displays).
- Check that PC resolution matches connected display capabilities.
- Connect the display directly to the PC to confirm that video output is available and that good image is shown.

TROUBLESHOOTING

Problem: Bad video image quality (one or both channels)

Solutions:

- Check that all video cables are inserted properly to the Switch, computer, and display.
- With everything connected, power-cycle the Belkin Secure Flip KVM Switch to reset the video. Make sure the Video Diagnostic LED is solid green.
- Check that the display that you are using supports the resolution and refresh-rate setting on your computer.
- Lower the video resolution of your PCs.
- Connect the display directly into the computer you are having trouble with to see if the problem still appears

Mouse

The computer does not detect my mouse, or my mouse does not work when I switch computers or reboot.

• Check that the mouse you are using is connected properly to the Switch.

• Check that the USB cable between the Switch and the computer is completely connected.

• Try connecting to a different USB port on the computer.

• Make sure the mouse works when directly plugged into the computer (the HID USB driver is installed on the computer). Rebooting may be necessary when trying this.

• Make sure you are not using a wireless mouse or a mouse with an integrated USB hub or other USB-integrated devices. These are not supported by the switch due to security policy.

• If the computer is coming out of standby mode, allow up to one minute to regain mouse function.

• Try a different mouse.

For extending USB, use only active USB extenders (over CAT5 cable).

Section 6 - Information

FCC Statement

DECLARATION OF CONFORMITY WITH FCC RULES FOR ELECTROMAGNETIC COMPATIBILITY

We, Belkin International, Inc., of 12045 E. Waterfront Drive, Playa Vista, CA 90094, declare under our sole responsibility that the products: F1DN102V, F1DN102F and F1DN102N to which this declaration relates:

Comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CE Declaration of Conformity

We, Belkin International, Inc., declare under our sole responsibility that the F1DN102V, F1DN102F and F1DN102N, to which this declaration relates, are in conformity with Emissions Standard EN55022 and with Immunity Standard EN55024, LVP EN61000-3-2, and EN61000-3-3.

ICES

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme á la norme NMB-003 du Canada.

Belkin International, Inc., Limited 3-Year Product Warranty

What this warranty covers.

Belkin International, Inc. (“Belkin”) warrants to the original purchaser of this Belkin product that the product shall be free of defects in design, assembly, material, or workmanship.

What the period of coverage is.

Belkin warrants the Belkin product for three years.

What will we do to correct problems?

Product Warranty.

Belkin will repair or replace, at its option, any defective product free of charge (except for shipping charges for the product). Belkin reserves the right to discontinue any of its products without notice, and disclaims any limited warranty to repair or replace any such discontinued products. In the event that Belkin is unable to repair or replace the product (for example, because it has been discontinued), Belkin will offer either a refund or a credit toward the purchase of another product from Belkin.com in an amount equal to the purchase price of the product as evidenced on the original purchase receipt as discounted by its natural use.

What is not covered by this warranty?

All above warranties are null and void if the Belkin product is not provided to Belkin for inspection upon Belkin's request at the sole expense of the purchaser, or if Belkin determines that the Belkin product has been improperly installed, altered in any way, or tampered with. The Belkin Product Warranty does not protect against acts of God such as flood, lightning, earthquake, war, vandalism, theft, normal-use wear and tear, erosion, depletion, obsolescence, abuse, damage due to low voltage disturbances (i.e. brownouts or sags), non-authorized program, or system equipment modification or alteration.

How to get service.

To get service for your Belkin product you must take the following steps:

1. Contact Belkin International, Inc., at 12045 E. Waterfront Drive, Playa Vista, CA 90094, Attn: Customer Service, or call (800)-223-5546, within 15 days of the Occurrence. Be prepared to provide the following information:
    a. The part number of the Belkin product.
    b. Where you purchased the product.
    c. When you purchased the product.
    d. Copy of original receipt.

2. Your Belkin Customer Service Representative will then instruct you on how to forward your receipt and Belkin product and how to proceed with your claim.

Belkin reserves the right to review the damaged Belkin product. All costs of shipping the Belkin product to Belkin for inspection shall be borne solely by the purchaser.

If Belkin determines, in its sole discretion, that it is impractical to ship the damaged equipment to Belkin, Belkin may designate, in its sole discretion, an equipment repair facility to inspect and estimate the cost to repair such equipment. The cost, if any, of shipping the equipment to and from such repair facility and of such estimate shall be borne solely by the purchaser. Damaged equipment must remain available for inspection until the claim is finalized. Whenever claims are settled, Belkin reserves the right to be subrogated under any existing insurance policies the purchaser may have.

How state law relates to the warranty.

THIS WARRANTY CONTAINS THE SOLE WARRANTY OF BELKIN. THERE ARE NO OTHER WARRANTIES, EXPRESSED OR, EXCEPT AS REQUIRED BY LAW, IMPLIED, INCLUDING THE IMPLIED WARRANTY OR CONDITION OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND SUCH IMPLIED WARRANTIES, IF ANY, ARE LIMITED IN DURATION TO THE TERM OF THIS WARRANTY.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

IN NO EVENT SHALL BELKIN BE LIABLE FOR INCIDENTAL, SPECIAL, DIRECT, INDIRECT, CONSEQUENTIAL OR MULTIPLE DAMAGES SUCH AS, BUT NOT LIMITED TO, LOST BUSINESS OR PROFITS ARISING OUT OF THE SALE OR USE OF ANY BELKIN PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

This warranty gives you specific legal rights, and you may also have other rights, which may vary from state to state. Some states do not allow the exclusion or limitation of incidental, consequential, or other damages, so the above limitations may not apply to you.

GS 5/15/2013

Reporting Belkin Product Security Vulnerability

If you are aware of potential security vulnerability with any Belkin Government product, we encourage you to contact us immediately at the following email address: gov_security@belkin.com or our technical support line at: 1-800-419-5546

After your communication is received, Belkin Government personnel will contact you to follow up. To ensure confidentiality, Belkin encourages you to use our PGP encryption key.

The gov_security@belkin.com email address is not intended to reach technical support on Belkin Government products or services. Any support inquiries should be directed to support@belkin.com

belkin.com

© 2013 Belkin International, Inc. All rights reserved.

All trade names are registered trademarks of respective manufacturers listed. Windows, Windows Vista, Microsoft, and IntelliMouse are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Mac OS and Mac are trademarks of Apple Inc., registered in the U.S. and other countries.